Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_

**Notes Questions for the Unit 3, Part 1 Notes – Population Ecology**

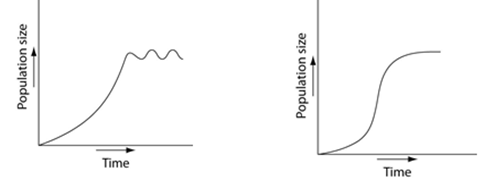
Mrs. Krouse, AP Biology, 2015-2016

***Vocabulary:*** *For each of the terms listed below, fill in the definition given in the notes in the second column. In the third column, I may provide you with a memory trick and/or ask you to break down a term into its parts to better understand its meaning.*

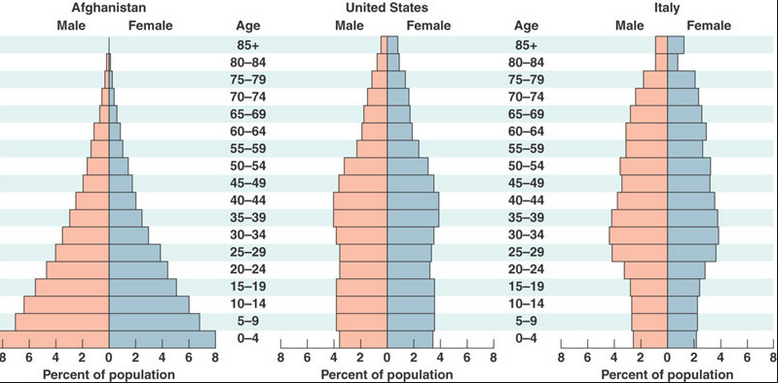
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| --- | --- | --- |
| **Vocabulary Term and Synonyms** | **Definition(s) Given in the Notes** | **Memory Trick and / or** **Breaking down the Word** |
| Exponential Growth |  | You don’t need to fill in this column for this term ☺ |
| Logistic Growth |  | You don’t need to fill in this column for this term ☺ |
| Carrying Capacity |  | **Breaking Down the Word:** How does “capacity” help clarify the meaning of this term? |
| Type I Survivorship Curve |  | You don’t need to fill in this column for this term ☺ |
| Type II Survivorship Curve |  | You don’t need to fill in this column for this term ☺ |
| Type III Survivorship Curve |  | You don’t need to fill in this column for this term ☺ |
| r-selected Population |  | You don’t need to fill in this column for this term ☺ |
| k-selected Population |  | You don’t need to fill in this column for this term ☺ |
| Density-Independent Limiting Factors |  | **Breaking Down the Word:** How does “independent” help clarify the meaning of this term? |
| Density-Dependent Limiting Factors |  | **Breaking Down the Word:** How does “dependent” help clarify the meaning of this term? |
| Altruism (aka Altruistic Behavior) |  | You don’t need to fill in this column for this term ☺ |

***Practice Questions:*** *Answer the following questions thoroughly and accurately in complete sentences.*

1. Describe the difference between population size and density.
2. What is the overall purpose of the quadrant technique and the mark and recapture technique?
3. How and why do the population size over time graphs look different for exponential vs. logistic growth?
4. Under what conditions is exponential growth likely to occur? Does this type of growth usually occur over a short period of time or a long period of time?
5. Under what conditions is logistic growth likely to occur? Does this type of growth usually occur over a short period of time or a long period of time?
6. Which of the following graphs depicting logistic growth is more likely for a REAL population? Use the term carrying capacity in your response.



1. Explain how generation time relates to body size.
2. Identify and explain the differences in the “life history strategies” of humans and fruit flies.
3. Describe the age structure of each of the populations of each of the three countries shown below—Afghanistan, the United States, and Italy.



1. Describe the population growth rate in each of the three countries based on their age structure pyramids.
2. Provide an example of a density-dependent and density-independent limiting factor.
3. Why haven’t humans reached our carrying capacity? Why is it so difficult to predict the human carrying capacity?
4. How do altruistic behaviors affect the survival potential of the population as a whole? How do they affect the survival potential of the individual performing the altruistic behaviors?